Appl. No. : 09/869,182
Filed : June 22, 2001

MADE, which follows the signature page of this Preliminary Amendment. On this set of pages, the insertions are underlined while the ~~deletions are struck through~~.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 2/7/02

By: _____

John M. Carson
Registration No. 34,303
Attorney of Record
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660
(619) 687-8632

H:\DOCS\MOH\MOH-6489.DOC:ad
020502

Appl. No. : 09/869,182
Filed : June 22, 2001

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The heading on page 1, immediately before the first paragraph, has been amended as follows:

~~Description~~Field of the Invention

The fourth paragraph on page 1 has been amended as follows:

~~The procedure in accordance with the invention is subject to the claim 1. Beneficial developments are subject to the sub-claims.~~A method for processing data objects, which are arranged in a data space, provides a multidimensional information space with discrete storage locations that represent information objects. Each information object is derived from an information basic object and contains at least one index specification which is characteristic for the position of the data object in the data space. In addition, each information object has at least one attribute specification for at least one virtual dimension of the information space. The information object can be identified in the information space using a processor of a computing device. Processing of the data object can be prompted by at least one instruction record.

IN THE CLAIMS:

The claims have been amended as follows:

1. (Amended) A p~~P~~rocedure for ~~the~~ processing ~~of~~ data objects with:

a data space ~~(6)~~, in which data objects ~~(19)~~ are arranged;

a multi-dimensional information space ~~(5)~~ that has at least two virtual dimensions ~~(X, Y)~~ and preferably also at least one third virtual dimension ~~(Z)~~;

whereby said information space ~~(5)~~ has in at least one dimension a large amount of discrete memory locations ~~(7)~~ suitable to represent information objects ~~(7)~~;

whereby each of said information objects ~~(7)~~ represent at least one information base-object ~~(7)~~ and whereby each information base-object comprises at least the following properties:

at least one pointer data ~~(9)~~ that is characteristic for the position of at least one data object ~~(19)~~ in the data space ~~(6)~~; and

at least one property data ~~(14)~~ for at least one virtual dimension of said information space;

wherein at least one set of instructions ~~(8)~~ is provided with at least one instruction for the processing of said data object ~~(19)~~; and

wherein~~, furthermore,~~ at least one computing device ~~(20)~~ controlled by at least one processor ~~(10)~~ is provided, with which said information object ~~(7)~~ in said information space ~~(5)~~ is identifiable, and by which the processing of said data object ~~(19)~~ in accordance with said instruction set can be caused.

2. (Amended) ~~P~~The procedure according to claim 1, wherein,

at least one virtual dimension ~~(21)~~ is hierarchically structured, whereby a position of an information object ~~(7)~~ within the hierarchy is preferably defined by said property data ~~(14)~~ of said information object ~~(7)~~.

3. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said information base object ~~(7)~~ has at least one property data ~~(14)~~ for substantially every virtual dimension, whereby for several virtual dimensions said property data ~~(14)~~ can be represented as a property vector.

4. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said instruction set ~~(8)~~, of which there is at least one, is taken from a group of instruction sets, which comprise base, organization, request ~~(70)~~, creation, modification, searching, playback, representation, printing, generating, execution, control, interaction, calculation, evaluation, regulation, play instruction sets~~, and the like~~.

5. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said procedure can be influenced by transferring at least one control vector ~~(49)~~ comprising at least one address vector ~~(70)~~, whereby said address vector is characteristic for a position of one instruction set ~~(8)~~.

6. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 5, wherein

said control vector ~~(49)~~ comprises at least one instruction vector ~~(14)~~ that is characteristic for at least one predefined instruction set ~~(8)~~.

7. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 5, wherein

said control vector ~~(49)~~ comprises at least one property vector ~~(14)~~, which characterizes at least one part ~~(30)~~ of said information space ~~(5)~~.

8. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

upon transfer of a control vector ~~(49)~~ and a pointer data ~~(9)~~ the following procedural steps are executed for the creation of an information object ~~(7)~~:

a) Separating said control vector ~~(49)~~ into at least one address vector ~~(49)~~ and one instruction vector in a separating device;

b) Call-up of an instruction set ~~(8)~~ characterized by said instruction vector;

c) Derivation of a property vector ~~(14)~~ for a data object with said processor device ~~(10)~~;

d) Generation of an information object ~~(7)~~ from said pointer data and said property vector ~~(14)~~ with said processor device ~~(10)~~;

e) Saving said information object ~~(7)~~ in said information space ~~(5)~~.

9. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

upon transfer of a control vector ~~(49)~~ and a data object ~~(19)~~ the following procedural steps are executed for the creation of an information object ~~(7)~~:

a) Separating said control vector ~~(49)~~ into at least an address vector ~~(49)~~ and at least an instruction vector in a separating device ~~(10)~~;

b) Call-up of an instruction set ~~(8)~~ that is characterized by said instruction vector;

c) Derivation of a property vector ~~(14)~~ for said data object ~~(19)~~ with said processor device ~~(10)~~;

d) Saving said data object ~~(19)~~ in said data space ~~(6)~~ and derivation of a pointer data ~~(9)~~;

e) Generation of an information object ~~(7)~~ from said pointer ~~(9)~~ and said property vector ~~(14)~~ with said processor device ~~(10)~~;

f) Saving said information object ~~(7)~~ in said information space ~~(5)~~.

10. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

upon transfer of a control vector ~~(49)~~ the following procedural ~~Steps~~ steps are executed for locating an information object ~~(7)~~

a) Separating said control vector ~~(49)~~ into at least an address vector ~~(49)~~, at least an instruction vector and at least a property vector ~~(14)~~ in a separating device;

b) Generation of a processing vector with predefined property data ~~(14)~~ for substantially every virtual dimension in said processor device ~~(10)~~;

c) Separating said property vector ~~(14)~~ in said processor device ~~(10)~~ into said property data ~~(14a)~~ for said virtual dimensions, contained in said property vector ~~(14)~~, and overwriting said property data ~~(14a)~~ of said processing vector with said the property data of said property vector;

d) Generation of an empty result list;

e) Execution of a search for information objects ~~(7)~~ in said information space ~~(5)~~, which substantially have corresponding property vectors ~~(14)~~ by comparing for substantially every virtual dimension said property data ~~(14a)~~ with said property data ~~(14)~~ in said processing vector;

f) Addition of a reference ~~(87)~~ to an information object ~~(7)~~ to said result list ~~(82)~~, if substantially all said property data ~~(14a)~~ substantially correspond;

g) Generation and output of a result file ~~(82)~~ substantially containing all elements of said result list.

11. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said procedure is executed on a first computing device ~~(20)~~, whereby a user can control said process from a second computing device ~~(3)~~ that is connected with said first computing device via at least one data connection ~~(18)~~.

12. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said information space ~~(5)~~ contains at least one virtual type dimension ~~(61a)~~, whereby at least one type data ~~(61b)~~ about a type of corresponding data object ~~(19)~~ is contained in said virtual type dimension for substantially every in-formation object ~~(7)~~.

13. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

for at least one information object ~~(7)~~ at least one type data ~~(61b)~~ is derived from said pointer data ~~(9)~~ of said data object ~~(19)~~, whereby in a separating device ~~(10)~~ said pointer data ~~(9)~~ of said data object ~~(19)~~ is separated into name elements and said at least one type data ~~(61b)~~ is derived from at least one characteristic name element.

14. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

for at least one information object ~~(7)~~ at least one type data ~~(61b)~~ is derived from at least one part of the contents of said data object ~~(19)~~, whereby in said separating device ~~(10)~~ at least a part of said contents of said data object ~~(19)~~ is separated into content elements and said at least one type data ~~(61b)~~ is derived from at least one characteristic content element.

15. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

at least one information object ~~(7)~~ contains at least one further object data taken from a group of object data, which contains at least one data of time, generation, time interval, validity, frequency, owner, group, access right, read right, write right, modification right, execution data~~, and the like~~.

16. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

said object type of said data object ~~(19)~~ is taken from a group of object types containing various known data formats types of text files, picture files, graphic files, spread-sheet files, CAD files, program files, audio files, video files.

17. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

for at least one information object ~~(7)~~ at least one description field ~~(62a)~~ is provided that is accessible via said information object ~~(7)~~, whereby said description field ~~(62a)~~ serves for receiving at least one characterizing data of said information object ~~(7)~~.

18. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

an information object ~~(7)~~ can have at least one connection ~~(43)~~ to at least one further information object ~~(7)~~, thus enabling a navigation between connected information objects.

19. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

for at least one information object ~~(7)~~, a content of at least one description field ~~(62a)~~ of said information object is separated in a separating device ~~(10)~~ into at least one characteristic data, and at least one characteristic content data is defined.

20. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

at least one first characteristic content data of an information object ~~(7)~~ is compared, in a comparison device ~~(10)~~, with at least one second characteristic content data of at least one other information object ~~(7)~~, whereby on match of said first and second characteristic content data a connection ~~(43)~~ of said information object ~~(7)~~ to said other in-formation object ~~(7)~~ is generated.

21. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

at least one virtual connection space ~~(40)~~ is provided with at least two connection dimensions ~~(41, 42)~~ containing discrete memory locations, whereby said memory locations are created in such a way that said memory locations contain at least one

connection data ~~(43)~~ for characterizing at least unidirectional relationships between different information objects ~~(7)~~.

22. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 21, wherein

said at least one virtual connection space ~~(40)~~ has at least a two-dimensional connection table, whereby within at least one part of the rows ~~(41)~~, every row represents a different information object ~~(7)~~, and whereby, within at least one part of said columns ~~(42)~~, every column represents a different information object ~~(7)~~.

23. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

upon transfer of a control vector ~~(49)~~ said following procedural steps for navigation in said information system are executed:

a) Separating said control vector ~~(49)~~ into at least an address vector and at least an instruction vector in a separating device ~~(10)~~;

b) Derivation of a property vector ~~(14)~~ from said control vector ~~(49)~~;

c) Generation of a processing vector with predefined property data ~~(14a)~~ for substantially every virtual dimension ~~(61, 62, 63)~~ in said processor device ~~(10)~~;

d) Separating of said property vector ~~(14)~~ in said processor device ~~(10)~~ into said property data ~~(14a)~~ for said virtual dimensions, contained in said property vector ~~(14)~~, and overwriting said property data ~~(14a)~~ of said processing vector with said property data ~~(14a)~~ of said property vector ~~(14)~~;

e) Generation of an empty search list;

f) Execution of a search for information objects ~~(7)~~ in said information space ~~(5)~~, which substantially have corresponding property vectors ~~(14a)~~, in which for substantially every virtual dimension ~~(61, 62, 63)~~ said property data ~~(14a)~~ are compared to said property data ~~(14a)~~ in said processing vector;

g) Addition of a reference to an information object ~~(7)~~ to said search list, if substantially all said property data ~~(14a)~~ substantially match;

h) Generation of an empty result list;

i) Execution of a search for substantially every element of said search list according to information objects ~~(7)~~ in said connection space ~~(40)~~, which is connected with said information object ~~(7)~~, that is represented by said element, in at least a unidirectional way;

j) Addition of a reference ~~(87)~~ to an information object ~~(7)~~ to said result list ~~(87)~~, if at least one unidirectional connection ~~(43)~~ exists;

k) Creation and output of a result file ~~(82)~~, which substantially contains all said elements ~~(87)~~ of said result list ~~(82)~~;.

24. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

at least one information object ~~(7)~~ can include at least one information element ~~(31)~~, whereby said information element ~~(31)~~ can represent at least one information object ~~(7)~~.

25. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 11, wherein

said data connection ~~(18)~~ is taken from a group of data connections containing data connections via telephone lines, radio, network, internet, cable, and virtual data connections~~, and the like~~.

26. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 25, wherein

a connection protocol is used for controlling said data connection ~~(18)~~, wherein said connection protocol is taken from a group of connection protocols containing serial connections and connection protocols such as TCP/IP, UUCP, UDP, NETBIOS, NETBEUI ~~and other standardized connection protocols~~.

27. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claims 1, wherein

at least one protocol is used with said connection protocol, that contains interface protocols and service protocols such as http, ftp, ntp, smtp, pop, imap, OLE, ActiveX, COM, DCOM, RMI, ODBC, JINI, STEP, DTD, SQL, ADO, as well as standardizations according to CORBA ~~and the like~~.

28. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claim~~s~~ 1, wherein

said data object ~~(19)~~ is stored in said data sphere or in a ~~conventional~~ database ~~(13), as is state of the art~~.

29. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claim~~s~~ 23, wherein

for at least three virtual dimensions ~~(61, 62, 63)~~ a virtual connection space ~~(40)~~ is provided.

30. (Amended) ~~P~~The procedure according to ~~at least one of the preceding~~ claim~~s~~ 1, wherein

at least one connection data ~~(43)~~ contains a parameter relating to a connection intensity.

31. (Amended) A computer readable medium containing a program for ~~Data carrier for said execution of said~~ a procedure ~~according to at least one of said preceding claims, characterized in that~~for processing data objects with:

a data space, in which data objects are arranged;

a multi-dimensional information space that has at least two virtual dimensions and preferably also at least one third virtual dimension;

whereby said information space has in at least one dimension a large amount of discrete memory locations suitable to represent information objects;

whereby each of said information objects represent at least one information base-object and whereby each information base-object comprises at least the following properties:

at least one pointer data that is characteristic for the position of at least one data object in the data space; and

at least one property data for at least one virtual dimension of said information space;

wherein at least one set of instructions is provided with at least one instruction for the processing of said data object;

wherein at least one computing device controlled by at least one processor is provided, with which said information object in said information space is identifiable,

and by which the processing of said data object in accordance with said instruction set can be caused, wherein said procedural steps are included in at least one instruction set stored in said data carrier.

32. (Amended) A c~~C~~omputing device, ~~consisting of~~comprising:

at least a processor device; and

at least a memory device;

whereby said individual components of said computing device are arranged in a spatially adjacent or spatially distributed way;

whereby said computing device is suitable to execute a procedure ~~in accordance with at least one of said claims 1 to 30~~ for processing data objects with:

a data space, in which data objects are arranged;

a multi-dimensional information space that has at least two virtual dimensions and preferably also at least one third virtual dimension;

whereby said information space has in at least one dimension a large amount of discrete memory locations suitable to represent information objects;

whereby each of said information objects represent at least one information base-object and whereby each information base-object comprises at least the following properties:

at least one pointer data that is characteristic for the position of at least one data object in the data space; and

at least one property data for at least one virtual dimension of said information space;

wherein at least one set of instructions is provided with at least one instruction for the processing of said data object; and

wherein at least one computing device controlled by at least one processor is provided, with which said information object in said information space is identifiable, and by which the processing of said data object in accordance with said instruction set can be caused.